EVALUATION OF PROCESSING TOMATO VARIETIES FOR MECHANICAL HARVEST 1970

Ohio Agricultural Research and Development Center

Northwest Branch, Custar, Ohio

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DEPARTMENT OF HORTICULTURE

OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER

WOOSTER, OHIO

Horticulture Mimeograph Series No. 372

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January 1971

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S. Z. BERRY*

In 1970 a substantial acreage of processing tomatoes was harvested by machine in Ohio. Although mechanized harvesting represents an important advance for the industry, machine use continues to be limited for lack of suitable varieties. As new adapted varieties become available they are being tested for mechanical harvest potential. The 1970 processing tomato evaluation trials were organized for harvest by machine. Eighteen varieties and lines were harvested from 4-row plots, replicated three times.

CULTURAL INFORMATION

Plants: Greenhouse-grown, 70 per standard flat from seed sown April 8.
Transplanted to Field: May 28, with 2 row transplanter, using 21-53-0 starter at 5 lbs/100 gal of water; 1/2 pint per plant.
Soil: Hoytville clay.
Previous crop and fall fertilizer: grain sorghum, 1250 lbs per acre of 0-26-26.
Herbicide: 4 lbs/acre Treflan.
Plot size and spacing: 27 plants per row in a 4-row plot, spaced 12" in rows five feet apart.
Insect and Disease Control: Manzate was applied at the rate of 3 lbs/acre on July 1, 16, and August 2, 13, 23, and 30. On August 30, a 3/4 lb/acre application was made of Thiodan.
Weather data: This information is summarized below. Hot, dry weather in August in particular made the season very favorable for once-over mechanical harvest. No substantial rain occurred in September until harvest was completed. Because of the dry conditions, useable fruit recovery was relatively high. Moisture induced fruit cracking was almost absent.

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Weather Data

	Temperature		Rainfall (inches)	
	1970	13-Year Av.	1970	13-Year Av.
June	70.6	69.6	3.09	3.42
July	72.8	72.3	5.38	4.16
August	71.2	70.7	0.74	2.57
September	68.4	65.2	3.04	2.96

HARVEST INFORMATION

Harvest was with an FMC Tomato Harvester. Harvest was made when the entries were estimated to be approaching a period of fruit maturation in which yield of usable ripe fruit was optimum. To obtain additional information on the ability of ripe fruit to hold and store in the field a second harvest of an additional row of each plot was made 7 days after the first harvest. Because of dry August conditions, growth of entries with late maturity was markedly restricted so that their ripening period wasshorter than normal. Percentages reported of fruit maturities and splitting is on a weight basis. Fruit size and stemming data was only collected on the first harvest of each entry.

SEED SOURCE

Campbell Soup Company, Riverton, New Jersey
Ferry Morse Seed Company, Mountain View, California
Harris Seed Company, Rochester, New York
H. J. Heinz Company, Bowling Green, Ohio
Libby, McNeil & Libby Company, Leipsic, Ohio
Maryland Agr. Exp. Sta., Department of Horticulture, College Park, Maryland
Ohio Agric. Res. and Dev. Center, Dept. of Horticulture, Wooster, Ohio
Purdue University, West Lafayette, Indiana
Texas Agricultural Experiment Station, Weslaco, Texas

EVALUATION OF TOMATO VARIETIES FOR MECHANICAL HARVEST

Northwest Branch, Custar, Ohio 1970

Variety	Harvest Date	Ripe Tons/ Acre	% of Total Crop				%Ripe Fruit Split	Fruit Size Oz.	%Fruit With Stems	Resistance	
			Ripe	Pink	Green	Cull				Verticillium	Fusarium
BOUNCER	8/31	18.8	69	6	22	4	4	3.9	79	R	R
	9/8	18.4	81	3	8	7	5				
CAMPBELL 28	8/31	22.3	77	7	12	4	7	4.8	81	S	R
	9/8	20.0	85	2	3	10	14				
CENTENNIAL	8/27	19.9	67	5	28	1	3	2.6	69	R	R
	9/2	18.7	74	11	13	2	2				
CHICO GRANDE	8/31	12.7	40	16	43	1	3	2.9	42	S	R
	9/8	24.3	78	6	14	2	3				
DWARF ITALIAN	8/31	9.5	56	9	32	3	5	1.5	15	S	R
	9/8	10.3	74	7	17	3	4				
HEINZ 1548	8/27	15.7	67	3	24	6	17	3.4	53	S	R
	9/2	15.0	74	6	14	6	18				
HEINZ 1350	8/31	14.2	68	8	21	4	12	4.1	89	R	R
	9/8	17.4	86	2	5	8	12				
LIBBY 1626	8/31	16.5	71	7	16	6	10	3.1	87	S	S
	9/8	17.9	83	4	6	8	9				
MARYLAND 102	8/31	16.5	78	4	16	2	2	2.0	47	S	R
	9/8	20.7	90	3	6	2	2				
NAPOLI	8/31	16.6	60	8	30	2	3	1.8	25	R	R
	9/8	22.1	78	7	13	2	2				

Variety	Harvest Date	Ripe Tons/ Acre	% of Total Crop				%Ripe Fruit Split	Fruit Size Oz.	%Fruit With Stems	Resistance	
			Ripe	Pink	Green	Cull				Verticillium	Fusarium
ROMA VF	8/31	12.6	50	10	38	2	4	2.6	44	R	R
	9/8	15.8	76	8	13	3	3				
TAMU CHICO III	8/27	19.9	73	9	16	2	2	1.9	40	S	R
	9/2	23.0	88	4	6	2	3				
OHIO 29-69	8/31	18.0	78	8	12	1	2	4.4	77	S	R
	9/8	17.6	88	4	6	3	4				
OHIO 32-69	8/31	19.6	84	4	6	7	7	4.1	91	S	R
	9/8	17.3	85	2	4	9	18				
OHIO 20-70	8/31	22.8	88	4	2	5	4	3.6	85	S	R
	9/8	20.5	90	1	2	8	11				
OHIO 21-70	8/27	21.7	78	6	14	3	4	3.6	67	S	R
	9/2	21.6	88	4	6	3	3				
OHIO 29-70	8/31	19.5	77	9	10	4	5	4.1	89	R	R
	9/8	18.9	87	1	4	8	7				
OHIO 38-70	8/31	19.9	74	7	18	1	3	3.1	56	R	R
	9/8	20.8	85	4	8	4	2				
OHIO 40-70	8/31	17.1	62	7	31	1	3	3.6	72	R	R
	9/8	16.9	72	11	15	2	2				

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